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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,102	03/30/2004	Nobuo Konishi	33082M201	3093

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EXAMINER	
ALANKO, ANITA KAREN	

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/812,102	KONISHI ET AL.	
	Examiner	Art Unit	
	Anita K. Alanko	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/29/06 amdt*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-29* is/are pending in the application.

4a) Of the above claim(s) *9-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election/Restrictions

Applicant's election of Group I in the reply filed on 3/29/06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the claim 18 limitation of "providing a substrate having a hydrophobic layer and a hydrophilic film arranged on the hydrophobic layer" lacks explicit basis in the specification. The specification recites films with high and low wettability (Page 15, lines 9-13), but fails to explicitly recite "a substrate having a hydrophobic layer and a hydrophilic film arranged on the hydrophobic layer."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-287922 in view of Taniyama et al (US 6,096,233).

JP 4-287922 discloses a method comprising:

providing a substrate W having a hydrophobic layer (Si(100),as shown in Fig.5) and a hydrophilic film (th-SiO, as shown in Fig.5) arranged on the hydrophobic layer;

simultaneously (during overlap) supplying a chemical liquid 4 (HF, as shown in Fig.8) and a rinse liquid 6 (water, see abstract) to form a mixed liquid film of a mixture of the chemical liquid and the rinse liquid on the surface of the substrate (the overlap between process A and process C, see abstract, lines 17-19).

JP 4-287922 does not disclose the timing cited. JP 4-287922 does not disclose to move the nozzles. Taniyama teaches that it is useful to move the nozzles that supply chemical liquid (col.7, lines 18-19) and water rinse liquid (col.4, lines 51-53) from a periphery towards the center in order to control the treatment through the various radii of the wafer to that desired. It would have been obvious to move the nozzles as cited in the method of JP 4-287922 because Taniyama teaches that it is a useful technique for controlling the treatment rate to a predetermined rate in order to optimize the final result for circular, spinning substrates.

Taniyama also teaches that the time that the chemical liquid stays on the substrate controls the amount of etching (col.8, lines 44-56) and that the moving speed of the nozzles is controllable (col.9, lines 12-44), and thus appears to reflect a result-effective variable.

It would have been obvious to one with ordinary skill in the art to have the partially expose the underlying hydrophobic layer while partially remaining the hydrophilic film because it saves time to remove films completely to expose underlying layers.

It would have been further obvious to have the timing cited in the modified method of JP 4-287922 because Taniyama teaches that the rate of moving the nozzles appears to reflect a result-effective variable which can be optimized, and the timing cited would provide a useful method for removing films. See MPEP 2144.05 IIB.

As to claim 19, Taniyama teaches that the time is a result effective, as discussed above. It would have been further obvious to predetermine the timing in the modified method of JP 4-287922 because Taniyama teaches that the time appears to reflect a result-effective variable which can be optimized. See MPEP 2144.05 IIB.

As to claim 20, JP 4-287922 discloses HF and silicon oxide (see Fig.5 and Fig.8).

As to claim 21-22, Taniyama discloses to stop supplying the chemical liquid when the nozzle reaches the center (col.7, lines 25-32), and then to move the rinse nozzle towards the center (col.7, lines 33-38) and to rinse from the center (since Taniyama does not disclose to stop rinsing before the center is reached).

As to claim 23, it would have been obvious to one with ordinary skill in the art to increase the supply rate as cited in the modified method of JP 4-287922 in order to speed up the rinsing process, which saves time and money.

As to claims 24-29, see the rejection of claims 18-23.

Response to Amendment

The 112, 2nd paragraph rejection is withdrawn since the unclear term has been deleted from the claims. The 102 rejection over JP 2001-1284206A is withdrawn since it does not disclose or suggest the relative hydrophobic and hydrophilic films. The 102 rejection over JP 4-287922 is withdrawn since it does not disclose the timing cited.

The claims are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 4-287922 in view of Taniyama et al (US 6,096,233).

Response to Arguments

Applicant's arguments filed 3/29/06 have been fully considered but they are not persuasive. Applicant argues that JP 4-287922A does not suggest the transition timing. Examiner acknowledges that JP 4-287922 does not disclose timing, however Taniyama teaches that the timing and nozzle speed should be controlled in order to get the desired final results. Thus, it is obvious to conduct the method with the cited timing because Taniyama teaches that this is an important parameter to control.

Examiner acknowledges that JP 4-287922 does not disclose to partially remove the oxide, however this is obvious since etching is well known, and it is useful to use etching to remove materials from substrates. It is obvious that it is partially removed since the nozzle directs the etchant to a part of the surface, and thus it is partially removed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K. Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon-Fri until 2:30 pm (Wed until 11:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anita K. Alanko

Anita K Alanko
Primary Examiner
Art Unit 1765